

AN ENIGMATIC *ECHINOLAMPAS* (ECHINOIDEA) FROM THE MIOCENE OF VICTORIA

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ABSTRACT: A specimen of the cassiduloid *Echinolampas* described in the late nineteenth century as *E. ovulum* Laube, 1869, but long thought lost, has been rediscovered. Comparison with the recently-redescribed *E. ovulum* and other species of *Echinolampas* from the Tertiary of southern Australia has revealed the specimen to be unique. For taxonomic stability it is placed in a new species, *E. duncani*.

In 1869 Laube, in his pioneering paper on the Early Miocene echinoid fauna of the Murray River cliffs in South Australia, described a distinctive species of *Echinolampas* which had been collected from the cliffs, as *E. ovulum*. Over many years there was intermittent debate as to whether or not this taxon was distinct from *E. gambierensis* Tenison Woods, 1867, which also occurs in the Early Miocene (Longfordian) strata in the banks of the Murray River. Both Tate (1891) and Roman (1965) had regarded the two as synonymous. However, in a more recent study, McNamara and Philip (1980) demonstrated the validity of the two taxa.

Following Laube's original description, another specimen which was purported to be *E. ovulum* was described by Duncan (1887, p. 420). Unfortunately, Duncan provided no details of the locality and horizon from which this specimen came. However, three years later, Gregory (1890) further described the specimen [British Museum (Natural History) E1107] as *E. ovulum*. He also figured it and provided information on some of the dimensions. Perhaps more importantly, Gregory provided locality details for the specimen. These showed it to have come from Bairnsdale in Victoria, and not from the Murray River. Although there were no stratigraphic details on the original label, it is most probably from the Bairnsdale Limestone. This formation is younger than the Longfordian age of much of the Murray River strata, being Bairnsdalian (latest Middle Miocene).

When attempts were made in 1978 to relocate Duncan and Gregory's specimen, prior to the revision of the southern Australian *Echinolampas*, it could not be found (McNamara and Philip 1980, p. 6). However, during a recent examination of the echinoid collections in the British Museum (Natural History) the specimen was relocated. Thus the suspicions of McNamara and Philip (1980), who provisionally called the specimen in its absence, *E. aff. ovulum*, could be tested. This was considered to be of particular importance because Laube's original specimen of *E. ovulum* has long been lost and a neotype was proposed by McNamara and Philip (1980, p. 5).

In this paper the specimen is fully described and its taxonomic position clarified. In the description the abbreviation %TL refers to percentage of the test length. Measurements were made with vernier callipers to an accuracy of 0.1 mm.

SYSTEMATIC PALAEOONTOLOGY

Order CASSIDULOIDA Claus 1880
Family ECHINOLAMPADIDAE Gray 1851
Genus *Echinolampas* Gray 1825

TYPE SPECIES: *Echinus oviformis* Gmelin 1789, by the subsequent designation of Pomel 1883, p. 62.

Echinolampas duncani sp. nov.
Fig. 1A-C

- 1887 *Echinolampas ovulum* Laube; Duncan, p. 420.
- 1890 *Echinolampas ovulum* Laube; Gregory, p. 483, pl. 13, figs 7-8.
- 1980 *Echinolampas* aff. *ovulum* Laube; McNamara and Philip, pp. 5-6.

HOLOTYPE: BM(NH) E1107, from Bairnsdale, Victoria; probably from the Middle Miocene (Bairnsdalian) Bairnsdale Limestone Member of the Gippsland Limestone.
DIAGNOSIS: Species of *Echinolampas* with broad petals, poriferous rows of which are only slightly unequal in length; apical system centrally positioned; peristome relatively shallow; bourellets not strongly developed.
DESCRIPTION: Test 56.5 mm in length; aboral surface moderately domed (Fig. 1B) with apex at mid test length, confluent with apical system; details of apical system not known. Test width 86.7%TL, widest posterior of centre; test height 57.7%TL.

Anterior and posterior petals of equal length, 40%TL; broad, maximum width at mid petal length, 16%TL; interporiferous region three times the width of the poriferous tracts; these are only slightly unequal in length and are slightly confluent distally; outer pores slightly larger than inner pores; not conjugate; maximum of 43 pore pairs in each row.

Adoral surface gently convex adambitally, sloping gently abambitally to shallow peristome, which is pentagonal in shape and has only weakly-developed bourellets; width 10%TL. Periproct irregular in shape, but slightly wider than long, width being 15%TL.

DISCUSSION: While it might be argued that the description of yet another species of *Echinolampas* to add to the existing total of almost 300 already described (Roman 1965), on the basis of a single, incompletely-



Fig. 1—A-C, *Echinolampas duncani* sp. nov., from the late Middle Miocene (Bairnsdalian) Bairnsdale Limestone Member of the Gippsland Limestone, Bairnsdale, Victoria, BM(NH) E1107, holotype. A, aboral view. B, lateral view. C, adoral view. All $\times 1$.

preserved specimen is foolhardy, there are good counter arguments. Being firmly entrenched in the literature as *E. ovulum*, when it can be demonstrated that it does not belong in this species, necessitates the proposal of a new taxon to accommodate this form. Although part of the aboral surface is missing, much of the specimen is well preserved, particularly in those characters which are species diagnostic.

Echinolampas duncani can be distinguished from *E. ovulum* (McNamara and Philip 1980, pl. 2, figs 4-8) in its higher, more domed aboral test surface; its less strongly distally-constricted petals; its relatively broader poriferous tracts; its non-conjugate pore pairs; its relatively narrower interporiferous zone; more centrally-positioned apical system; and less pulvinate adoral surface.

The other Longfordian species, *E. gambierensis*, has a domed, high test, like *E. duncani*, but it differs in its narrower petals, more anteriorly-positioned apical system and more strongly-developed bourellets.

Another species of *Echinolampas* has previously been described from the Bairnsdale Limestone: *E. gregoryi* gregoryi McNamara and Philip 1980. *E. duncani* is quite different from this species, differing in its much shorter, wider petals, smoother aboral surface; more pulvinate

adoral surface; and shallower, less well-defined phyllodes. Of non-Australian species, *E. duncani* most closely resembles *E. kleini* (Goldfuss 1826) from the late Oligocene of Europe, particularly in the form of the petals. *E. duncani* can be distinguished, however, by its relatively narrower test; more pulvinate adoral surface and larger periproct.

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